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| 10/764,193 | 01/23/2004 | Michael L. McSwiney | ITL1056US (P17793) | 8063 |
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| EXAMINER | | | | |
| TUROC, DAVID P | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1792 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/764,193

Applicant(s)

MCSWINEY ET AL.

Examiner

DAVID TUROCY

Art Unit

1792

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-20 and 22-36 is/are pending in the application.
- 4a) Of the above claim(s) 29-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-20 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S506)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendments, filed 1/23/2004, have been fully considered and reviewed by the examiner. The examiner note the amendment to claims 1 and 11 to include the subject matter of claims 3 and 21 and the subsequent cancellation of claims 3 and 21. Claims 1-2, 4-20, 22-35 remain pending in the instant application, with claims 29-35 withdrawn due a restriction requirement.

Response to Arguments

2. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

In response to the applicant's arguments with regards to the provision double patentable are considered, however, in view of the new grounds of rejection discussed above. Therefore the double patenting rejection has been maintained below.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-28 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 2006/0228903. Although the conflicting claims are not identical, they are not patentably distinct from each other because both set of claims teach forming a silicon nitride film using a precursor containing disilacyclohexane.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Wertheimer et al. (USPN 5041303).

Claims 1, 2, 4, 7: Wertheimer discloses a providing a silicon precursor (alkyl substituted cyclohydrazine) and a nitrogen source (ammonia) and co-reacting to

form a silicon nitride film (column 5, table 3). The film is deposited at less than 500°C (column 4, lines 4-5).

Claim 10: The film will inherently have an impurity profile.

6. Claims 1, 2, 4, 5, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bao et al. (Polycyclodisilazane: a new polymeric precursor for silicon nitride-based ceramics).

Claims 1, 2, 4, 5, 6, 7: Bao discloses a providing a silicon precursor (alkyl, halogenated or amine substituted cyclohydrazine) and a nitrogen source and co-reacting to form a silicon nitride film (page 395, 398, table I). The film is deposited at less than 500°C (figure).

Claim 9: Bao discloses mixing the silicon and nitrogen (section 2.3)

Claim 10: The film will inherently have an impurity profile.

7. Claims 1, 2, 4, 5, 7, 8, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Seyforth et al. (USPN 4720532).

Claims 1, 2, 4, 5, 7: Seyforth discloses a providing a silicon precursor (alkyl and halogen substituted cyclohydrazine) and a nitrogen source (ammonia) and co-reacting to form a silicon nitride film (abstract). The film is deposited at less than 500°C (column 4, lines 50-54).

Claim 9: Seyforth discloses mixing the silicon and nitrogen (abstract)

Claim 10: The film will inherently have an impurity profile.

8. Claims 11, 13, 15, 17, 19, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Scarlete (Poly(methylsilane) and Poly(Hydrazinomethylsilane) as precursors for silicon containing ceramics)

Claims 11, 13, 15, 17, 19, 20: Scarlete discloses a silicon precursor with a general formula as claimed (six member ring of $\text{Si}_2\text{N}_4\text{H}_6$) and a nitrogen source (hydrazine) to deposit a silicon nitride film below 500°C (abstract, pages 134-135).

9. Claims 22-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Todd (USPN 20020016084 A1).

Claims 22-25: Todd discloses providing a silicon precursor (tetrasilylhydrazine) and a nitrogen precursor (ammonia) to form a silicon nitride film (Paragraph 0027-0031).

Claims 26: Todd discloses mixing in a solvent to spin coat (0031).

Claim 27: The film will inherently have an impurity profile.

Claim 28: Todd discloses less than 500°C deposition temperature (0034-0036).

Allowable Subject Matter

10. Claims 12, 14, 16, and 18 include allowable subject matter, if rewritten to overcome the obvious double patenting rejection and including all the limitations of the intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: None of the prior art cited or reviewed by the examiner alone or in combination reasonably teaches or makes obvious the use of the specific compounds as claimed by the applicant in claims 12, 14, 16, or 18.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TUROCY whose telephone number is (571)272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Turocy/
Examiner, Art Unit 1792

/Timothy H Meeks/

